

A₁ concl. 22a...n and a queue 60a...n in the update queue array 24a...n in which the updates for that event listener 28a...j are placed.

IN THE CLAIMS

Amend claim 1 as shown in the "Version With Markings to Show Changes Made", submitted pursuant to 37 CFR 1.121.

Add claims 4-41 as follows. Further, below is a clean set of all pending claims submitted pursuant to 37 CFR 1.121(c)(3).

A₂ 1. (Amended) A method for providing data updates to a page, wherein the page includes multiple regions of dynamic content, wherein the regions and the page are displayed within a presentation program executing on a client, wherein a server transfers the page to the client over a network, and wherein the server performs:

detecting state changes;
queuing information on the state changes;
generating an update package including content indicating the detected state changes; and
sending the update package to the client, wherein the presentation program in the client renders the content in the update package in at least one region.

2. The method of claim 1, wherein the update package is generated and sent to the client computer in response to a request from the client computer.

3. The method of claim 2, wherein the presentation program comprises a web browser and wherein the request comprises a HyperText Transfer Protocol (HTTP) request.

A₃ 4. (New) The method of claim 1, wherein queuing information on the state changes further comprises:

maintaining one update queue for at least one region of dynamic content that is capable of being displayed in the presentation program, wherein the update queue include state change information to be rendered in the at least one region associated with the update queue.

5. (New) The method of claim 4, further comprising:
providing an event listener capable of detecting state changes, wherein one event listener is associated with each update queue;
detecting, with the event listener, a state change; and
adding, with the event listener, information on the state change to the update queue associated with the event listener.

6. (New) The method of claim 5, wherein one event listener and associated update queue provide state change information for one instance of a component type, wherein the region associated with the update queue renders information in the client presentation program on the instance of the component type.

7. (New) The method of claim 4, further comprising:
providing one servlet for each monitored component type; and
instantiating, with the servlet, one event listener for each instance of the component type.

8. (New) The method of claim 4, wherein the regions and the corresponding update queues provide state change information for one component type.

9. (New) The method of claim 1, further comprising:
receiving a client request for the page;
generating a client session object for the client request; and
generating an update queue array for the client session object including one update queue for the regions of dynamic content in the page.

10. (New) The method of claim 9, further comprising:
receiving a client request for information on a requested component instance from one region of the page; and
registering the client session with an event listener providing state change information for the requested component instance, wherein the event listener adds state change information to one update queue for the component type in the update queue array for the registered client session.

A3 11. (New) The method of claim 10, further comprising:
determining one event listener providing state change information to the update queue for an instance of the component type other than the requested instance of the component type; and
submitting a request to the determined event listener to unregister the client session for the client submitting the client request.

12. (New) The method of claim 1, further comprising:
maintaining one client session object for each client that has received one page; and
maintaining at least one queue for each client session object to queue information on state changes rendered in the regions of the page.

13. (New) The method of claim 12, further comprising:
receiving a refresh request from one client;
determining the client session object for the client submitting the refresh request;
determining a queue for the determined client session object; and
returning to the requesting client state change information from the determined queue to the client to render in at least one region in the page.

14. (New) The method of claim 13, wherein a plurality of queues are associated with client session objects, and wherein the queues associated with one client session object includes state change information for regions in the page sent to the client.

15. (New) The method of claim 14, wherein the refresh request indicates one region in the page, and wherein determining the queue for the determined client session object further comprises:

determining the queue for the client session object that includes state change information for the region indicated in the refresh request.

16 (New) A system for providing data updates to a page, wherein the page includes multiple regions of dynamic content, wherein the regions and the page are displayed within a presentation program executing on a client, comprising:

a processing unit;

a network connection enabling the processing unit to transfer the page to the client over a network;

a memory device; and

a computer readable medium including code executed by the processing unit to perform:

(i) detecting state changes;

(ii) queuing information on the state changes in the memory device;

(iii) generating an update package including content indicating the detected state changes; and

(iv) sending the update package to the client, wherein the presentation program in the client renders the content in the update package in at least one region.

17. (New) The system of claim 16, wherein the processing unit executes the code to further perform:

receiving a client request for the page;

generating a client session object for the client request; and
generating an update queue array in the memory device for the client session object
including one update queue for the regions of dynamic content in the page.

18. (New) The system method of claim 17, wherein the processing unit executes the code to further perform:

receiving a client request for information on a requested component instance from one region of the page; and

13 registering the client session with an event listener providing state change information for the requested component instance, wherein the event listener adds state change information to one update queue for the component type in the update queue array for the registered client session.

19. (New) The system of claim 18, wherein the processing unit executes the code to further perform:

determining one event listener providing state change information to the update queue for an instance of the component type other than the requested instance of the component type; and

submitting a request to the determined event listener to unregister the client session for the client submitting the client request.

20. (New) The system of claim 16, wherein the processing unit executes the code to further perform:

maintaining one client session object for each client that has received one page; and
maintaining at least one queue for each client session object to queue information on state changes rendered in the regions of the page.

21. (New) The system of claim 20, wherein the processing unit executes the code to further perform:

- receiving a refresh request from one client;
- determining the client session object for the client submitting the refresh request;
- determining a queue for the determined client session object; and
- returning to the requesting client state change information from the determined queue to the client to render in at least one region in the page.

A3 22. (New) The system of claim 21, wherein a plurality of queues are associated with client session objects, and wherein the queues associated with one client session object includes state change information for regions in the page sent to the client.

23. A system for providing data updates to a page, wherein the page includes multiple regions of dynamic content, wherein the regions and the page are displayed within a presentation program executing on a client, wherein a server transfers the page to the client over a network, comprising:

- means for detecting state changes;
- means for queuing information on the state changes;
- means for generating an update package including content indicating the detected state changes; and
- means for sending the update package to the client, wherein the presentation program in the client renders the content in the update package in at least one region.

24. (New) The system of claim 23, further comprising:

- means for receiving a client request for the page;
- means for generating a client session object for the client request; and
- means for generating an update queue array for the client session object including one update queue for the regions of dynamic content in the page.

25. (New) The system of claim 24, further comprising:
means for receiving a client request for information on a requested component instance from one region of the page; and
means for registering the client session with an event listener providing state change information for the requested component instance, wherein the event listener adds state change information to one update queue for the component type in the update queue array for the registered client session.

26. (New) The system of claim 25, further comprising:
means for determining one event listener providing state change information to the update queue for an instance of the component type other than the requested instance of the component type; and
means for submitting a request to the determined event listener to unregister the client session for the client submitting the client request.

27. (New) The system of claim 23, further comprising:
means for maintaining one client session object for each client that has received one page;
and
means for maintaining at least one queue for each client session object to queue information on state changes rendered in the regions of the page.

28. (New) The system of claim 27, further comprising:
means for receiving a refresh request from one client;
means for determining the client session object for the client submitting the refresh request;
means for determining a queue for the determined client session object; and
means for returning to the requesting client state change information from the determined queue to the client to render in at least one region in the page.

29. (New) The system of claim 28, wherein a plurality of queues are associated with client session objects, and wherein the queues associated with one client session object includes state change information for regions in the page sent to the client.

30. (New) An article of manufacture for providing data updates to a page, wherein the page includes multiple regions of dynamic content that may be separately updated independently of each other, wherein the regions and the page are displayed within a presentation program executing on a client, wherein a server transfers the page to the client over a network, and wherein the article of manufacture causes operations to be performed, the operations comprising:

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detecting state changes;
queuing information on the state changes;
generating an update package including content indicating the detected state changes; and
sending the update package to the client, wherein the presentation program in the client renders the content in the update package in at least one region.

31. (New) The article of manufacture of claim 30, wherein queuing information on the state changes further comprises:

maintaining one update queue for at least one region of dynamic content that is capable of being displayed in the presentation program, wherein the update queue include state change information to be rendered in the at least one region associated with the update queue.

32. (New) The article of manufacture of claim 31, further comprising:
providing an event listener capable of detecting state changes, wherein one event listener is associated with each update queue;
detecting, with the event listener, a state change; and
adding, with the event listener, information on the state change to the update queue associated with the event listener.

33. (New) The article of manufacture of claim 32, wherein one event listener and associated update queue provide state change information for one instance of a component type, wherein the region associated with the update queue renders information in the client presentation program on the instance of the component type.

34. (New) The article of manufacture of claim 31, further comprising:
providing one servlet for each monitored component type; and
instantiating, with the servlet, one event listener for each instance of the component type.

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35. (New) The article of manufacture of claim 31, wherein the regions and the corresponding update queues provide state change information for one component type.

36. (New) The article of manufacture of claim 30, further comprising:
receiving a client request for the page;
generating a client session object for the client request; and
generating an update queue array for the client session object including one update queue for the regions of dynamic content in the page.

37. (New) The article of manufacture of claim 36, further comprising;
receiving a client request for information on a requested component instance from one region of the page; and
registering the client session with an event listener providing state change information for the requested component instance, wherein the event listener adds state change information to one update queue for the component type in the update queue array for the registered client session.

38. (New) The article of manufacture of claim 37, further comprising:
determining one event listener providing state change information to the update queue for
an instance of the component type other than the requested instance of the component type; and
submitting a request to the determined event listener to unregister the client session for
the client submitting the client request.

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39. (New) The article of manufacture of claim 30, further comprising:
maintaining one client session object for each client that has received one page; and
maintaining at least one queue for each client session object to queue information on state
changes rendered in the regions of the page.

40. (New) The article of manufacture of claim 39, further comprising:
receiving a refresh request from one client;
determining the client session object for the client submitting the refresh request;
determining a queue for the determined client session object; and
returning to the requesting client state change information from the determined queue to
the client to render in at least one region in the page.

41. (New) The article of manufacture of claim 40, wherein a plurality of queues are
associated with client session objects, and wherein the queues associated with one client session
object includes state change information for regions in the page sent to the client.
